

# **PPS: FY23 Planning**

Oli Gutsche, Charles Leggett, Meifeng Lin

**HEP-CCE All Hands Meeting** Oct 12 2022











## **Current Status of Projects**



	Kokkos	SYCL	OpenMP	Alpaka	std::par
Patatrack	Done	Done	WIP	WIP	WIP
Wirecell	Done	WIP	WIP	stretch goal	TBD
FastCaloSim	regular: done group: WIP	regular: done group: no	regular: WIP group: TBD	regular: WIP group: TBD	regular: done group: done
P2R	done	Done	Need local var	Done	Done









#### Plans for FY22 / FY23



- Want to allocate ~6 months to write reports
  - end major code development by April 1 2023
- Project timelines / development plans
  - WCT
    - Finish Kokkos, OpenMP and SYCL ports
    - possible goal: std::par
    - stretch goal: alpaka
    - finish standalone testing framework, test interoperability with TBB
  - FCS
    - finish port to OpenMP, Alpaka and Kokkos group sim
      - if have time, do group sim for OMP and Alpaka
    - see what happens with std::par and nvc++
  - Patatrack
    - fully test AMD and Intel backends
    - finish port to SYCL (done at CERN), OpenMP and std::par
  - P2R
    - finish existing ports
    - develop better/more reproducible testing









#### Plans for FY22 / FY23



- Project timelines / development plans
  - ACTS
    - full chain probably not ready by end of FY22 (hit clusterization, track finding, track fitting: ~15 kernels)
      - what can we do with what's there?
    - SYCL port (code structure is such that majority of functions are shared between CUDA/SYCL)
    - std::par Clusterization
  - We can certainly write up experiences with what's been done, and benchmarks of available code







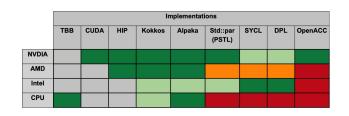


### **Preparation for Final Report**

HEP-CCE

- Performance matrix for all testbeds
  - hardware architecture vs portability layer
- Finish details in metrics documents
  - OpenMP, Alpaka, std::par for new efforts
- Common format to report/store results
  - o including metadata such as hardware, compiler/library/driver versions, code versions, etc
- Continue benchmarking existing codes as compilers and backends evolve
  - eg ROCm, SCYL and std::par
- Access to testing machines for more consistent reproducibility / comparisons
  - Aurora
  - LBL exalearn machines for A100 and MI100
  - What about Frontier?

- Write report!
  - decide where to publish













#### **Outreach**



- Winter 23: present preliminary reports to experiments
  - during sessions at general meetings of experiments
- Spring 23: technical workshops
  - more technology focussed
  - addressed to wider audience (HEP community)
  - potentially involve HSF and IRIS
  - help develop ideas for our final reports
- Conferences to target
  - ACAT 22 (October 24)
    - PPS overview poster
    - Use case presentations: WCT, P2R
  - CHEP 23 (May 8)
  - Supercomputing 23 (mid Nov)
  - coordinate with IOS
  - have both technical presentations from PPS and overarching from all of CCE







